THE COLLABORATIVE LABELING AND APPLIANCE STANDARDS PROGRAM

A Qualitative Assessment of Energy Efficiency Policy Development Assistance (PDA) in Asia

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1. Introduction

Starting in June of 2007, Japan's Central Research Institute of Electric Power Industry (CRIEPI) funded CLASP to research technical assistance worldwide that supports the development and implementation of energy efficiency policy. The goals of this research are to:

(1) Qualitatively estimate the current level of policy development assistance (PDA) for energy efficiency (including but not limited to standards and labeling) globally and in Asia; as well as

(2) Speculate on how much PDA could be usefully applied to enhance developing countries' economic growth and reduce carbon emissions.

We subsequently collected information from over a dozen organizations and agencies over a period of seven weeks and assembled it into this report.

We have learned from this research that it is impossible to determine the total Official Development Assistance (ODA) going to energy efficiency. Thus it is also impossible to determine within that ODA how much PDA goes to energy efficiency policy in general, or to energy efficiency standards and labeling (S&L) policy in particular. At best, we can estimate the order of magnitude and gain a feel for the flow of ODA devoted to energy efficiency from snippets of information from various organizations and agencies. This is because:

- Energy efficiency is often a component of a more comprehensive grant or loan and is not tracked separately.
- What information exists on the amount of funding devoted to energy efficiency rarely distinguishes the portion devoted to enhancing energy efficiency *policy* (such as helping governments develop S&L programs) from that going to support energy efficiency *implementation projects* (such as co-funding manufacturers retooling their production lines).

This report provides the most comprehensive view of the energy efficiency portion of the ODA provided by the world's major donors that could be assembled in the limited time available for this study.

2. The Nature and Magnitude of Development Assistance

Assistance to developing countries covers many sectors, such as primary urgency aid, social and economic development, human rights, democratization and good governance, stability and security, humanitarian assistance and environment (for a full breakdown see Annexe 1). Governments work consistently to reorient and reprioritize development assistance in order to carefully reflect current global development challenges, threats and opportunities. Over the last years, increasing funding has been allocated to the energy and environment sectors. The promotion of sustainable development combined with poverty alleviation has been the fundamental challenge for development cooperation over the last 5 to 10 years.

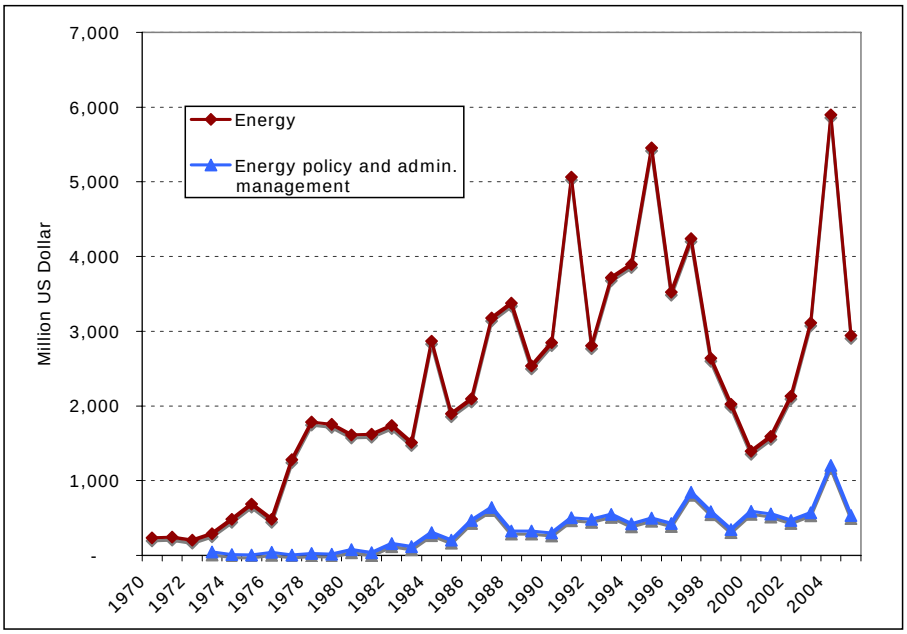
ODA varies by countries and generally reflects the size of the economy. An important United Nations target, to which all donors signed up in 1970, states that each donor should

spend 0.7% of its gross national income as ODA. Among the 22 Organization for Economic Cooperation and Development (OECD) countries, the share of each country's gross domestic product devoted to ODA ranges from about 0.15% for Italy and the U.S. to about 0.85% for Norway, Denmark, and Luxemburg.

The OECD maintains a through database on aid flow called the Creditor Reporting System (CRS) Aid Activity database[1]. The objective of this database is to provide a set of readily available basic data that enables analysis on where aid goes, what purposes it serves, and what policies it aims to implement, on a comparable basis for all Development Assistance Committee (DAC) members. Data are collected on individual projects and programs. Focus is on financial data but some descriptive information is also made available.

Sectors related to energy are divided into 17 categories[2]. Renewable forms of energy are well represented in the categorization of the type of aid. It is regrettable that no single category refers specifically to energy efficiency. However, the category "Energy policy and administration management" includes energy efficiency technical assistance. Figure 1 shows the amount of ODA from DAC members allocated to the entire energy sector according to the OECD DAC database and to the portion of aid allocated to "Energy policy and administration management" based on the CRS database.

Figure 1. Aid Allocated to the Energy Sector



Source: OECD DAC database and OECD CRS database, August 2007.

[1] http://www.oecd.org/dataoecd/50/17/5037721.htm

[2] Energy policy and administration management; Power generation/non-renewable sources; Power generation/renewable sources; Electrical transmission/distribution; Gas distribution; Oil-fired power plants; Gas-fired power plants; Coal-fired power plants; Nuclear power plants; Hydro-electric power plants; Geothermal energy; Solar energy; Wind power; Ocean power; Biomass; Energy education/training; Energy research.

3. Multilateral Cooperation

Research at the global level reveals little about specific assistance to energy efficiency projects and programs. A closer review of the funding behavior of individual assistance entities such as funds, banks, partnerships (or bilateral donors in Section 4 or private foundations in Section 5) is somewhat more revealing of trends in support for energy efficiency.

3.1 Global Environmental Facility

The Global Environmental Facility (GEF) is currently the world's largest fund for protecting the environment. Since 1991, the Global Environment Facility has provided USD6.2 billion in grants and generated over USD20 billion in co-financing from other sources to support over 1,800 projects that produce global environmental benefits in 140 developing countries and countries with economies in transition. GEF distributes these funds through the World Bank, the United Nations Development Program (UNDP) and the United Nations Environmental Program (UNEP). In 2006, GEF received its fourth replenishment equaling USD3 billion from 32 donor countries. Covering the 2006-2010 period, the funds will go towards projects related to biodiversity, climate change, international waters, land degradation, persistent organic pollutants and ozone layer depletion.

The GEF promotes energy efficiency by removing barriers to the large-scale application, implementation, and dissemination of cost-effective, energy-efficient technologies and practices. Such barriers lie in the lack of conducive policies, inadequate information and awareness, and insufficient access to financing. GEF supports market transformation of energy-efficiency appliances and widespread adoption of energy-efficient technologies in industry and building sectors.

GEF funding for climate change is recorded in seven categories[3], one of which is 'energy efficiency'. GEF reports its funding for energy efficiency in three-year bundles as follows[4]:

Pilot Phase (1991-94):	USD70.6 million
GEF-1 (1995-98):	USD128.6 million
GEF-2 (1999-02):	USD200.1 million
GEF-3 (2003-06):	USD286.7 million

Besides the seven categories within climate change funding, GEF tracks operational programs. From the GEF project database, 30 projects are included in operational program 5, which refers to "removing barriers to energy conservation and efficiency" approved for 2005 to 2007. The total GEF funding for these projects is USD214 million. Within these portfolios of projects, we counted 14 that are directed to standard and labeling programs. A sampling of these projects is presented in Annexe 2.

GEF projects formally leverage GEF funds with additional project co-financing from

[3] Seven categories are: Energy Efficiency, Renewable Energy, Low GHG-Emitting Energy Technologies, Sustainable Transport, Enabling Activities, Short-Term Response Measures (STRM), and Strategic Pilot Approach to Adaptation

[4] Report of the Global Environment Facility to the Conference of the Parties, FCCC/CP/2006/3, 17 October 2006

governments and other partners. The non-GEF contribution to GEF projects is typically twice as large as the GEF funding, although much of this is often in-kind (non-cash) contributions, representing an attribution of normal operational costs of the participating government.

CLASP sources at GEF do not keep a breakdown of the portion of energy efficiency funds going to Asia. We believe that China has been the largest individual country recipient. India and Vietnam have each received GEF energy efficiency grants.

GEF also keeps no record of what portion of its energy efficiency grants are for PDA to governments, but our own experience tells us that much of it is for that purpose.

3.2 The World Bank Group

The World Bank Group (WBG) does not systematically maintain records of the different applications of its grants and loans within the energy sector. For the purposes of this study CLASP is providing a scattering of judgments from a variety of sources.

The WBG's latest annual 'Bonn Report' addresses total investment in renewable energy and energy efficiency:

> "The World Bank Group (WBG) has committed more than USD10 billion to renewable energy and energy efficiency in developing countries since 1990." [5]

In a more recent report, referring to the Bank's Clean Energy Investment Framework (CEIF), the Bank's Development Committee stated that:

> "*Total energy support*, from all sources (WBG, Carbon Finance, GEF) is expected to be in excess of USD10 billion in the three year period since the CEIF was initiated (FY06-08), up from USD7 billion over the previous three years."[6]

The GEF is the largest source of grant financing for energy efficiency and renewable energy, with cumulative commitments through the World Bank of approximately USD1.5 billion since 1992.

About half of the USD10 billion referred to above is for energy efficiency. Most of it is investment in facilities and implementing projects and 70% of the energy efficiency portion is distributed through the International Finance Corporation (IFC) and is thus for private ventures. Only a small fraction is for PDA to governments.

The WBG reports on its non-loan Technical Analysis (TA) for all aspects of energy efficiency (public and private, policy and implementation) as follows:

> "For the past 16 years, the WBG has been engaged in promoting energy efficiency, having

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[5] Improving Lives: World Bank Group Progress on Renewable Energy and Energy Efficiency Fiscal Year 2006, December 2006.
http://siteresources.worldbank.org/EXTENERGY/Resources/336805-1157034157861/Improving_Lives_Low_Res.pdf

[6] Development Committee (Joint Ministerial Committee of the Boards of Governors of the Bank and the Fund , on the Transfer of Real Resources to Developing Countries) "Clean Energy for Development Investment Framework: the World Bank Group Action Plan", March 28, 2007.
http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21289621/DC2007-0002(E)-CleanEnergy.pdf

financed investments totaling USD2.2 billion for over 100 projects in more than 40 countries. The projects span all regions, but with a significant concentration in Europe and Central Asia, and East Asia and Pacific, and in a few sectors, in particular the delivery of district heating and electric power services. In FY2006, the WBG committed USD490 million for energy efficiency projects, addressing the full range of end-use and supply-side opportunities and also aiming to remove institutional, regulatory, financial and technical barriers. At the 2004 Bonn International Conference for Renewable Energies, the WBG committed to increase financing for renewable energy and energy efficiency operations by 20 percent a year over the next five years. ... Budget for non-loan energy-efficiency TA FY07-09 = USD17.7 million."[7]

The latest Bank report on Progress on Renewable Energy and Energy Efficiency for the fiscal year 2005/2006 states:

> "In fiscal year 2006, the WBG's financial support for renewable energy and energy efficiency projects was USD871 million, continuing a growth trend that began in 2001. Total investment for new renewable energy, and energy efficiency rose to USD680 million in fiscal year 2006 and to USD459 in fiscal 2005. Cumulative new renewable energy and energy efficiency investment reached USD1.14 billion in fiscal years 2005-2006, double the Bonn commitment.
>
> The WBG investments for renewable energy and energy efficiency in fiscal year 2006 were 37 percent of total power sector investments and 20 percent of total energy sector investments of USD4.4 billion. These investments supported 62 renewable energy and energy efficiency projects in 35 countries. In addition, the Energy Sector Management Assistance Programme (ESMAP) (http://www.esmap.org), a multi-donor facility at the World Bank, committed USD2.5 million for supporting analytical and technical assistance work in the area of renewable energy and energy efficiency in 2005."[8]

Source of Funds	New-RE	Hydro>10MW	EE	Total
World Bank (IBRD/IDA)	131.4	118.6	121.9	371.9
World Bank (GEF and Carbon Finance)	37.8	6.0	2.2	46.0
IFC (Own Funds)	17.4	67.0	344.0	428.4
IFC (GEF and other trust funds*)	3.3	0.0	20.1	23.4
MIGA (investment guarantees)	0.0	0.0	1.8	1.8
Total	189.9	191.6	490.0	871.4

IBRD: International Bank for Reconstruction and Development; IDA: International Development Agency;
IFC: International Finance Corporation; MIGA: Multilateral Investment Guarantee Agency.
*IFC other trust funds: Environmental Opportunities Facility

A CLASP colleague at the WBG estimates that most of the TA money reported above is for the accession countries of the European Union and the former Soviet Republic. He also believes that much of it is through the GEF, which is reported below. His best judgment is that the WBG's annual non-loan PDA for Asia is roughly USD6 million, plus or minus a few million.

The World Bank maintains a project database that provides access to basic information on all of the World Bank's lending projects from 1947 to the present. A sampling of this database is presented in Annexe 3. However we caution the reader that many of the projects are funded with GEF funds and we have found no simple accounting that shows

[7] The World Bank Energy Efficiency for Sustainable Development (EEfSD): Scale Up Strategy and Action Plan, Draft, March 22, 2007

[8] WBG, Right on Target: Progress on Renewable Energy and Energy Efficiency in 2005/2006

what portion we may also be reporting in the prior section (see 3.1) on the GEF.

3.3 United Nations Development Program

The United Nations Development Program (UNDP) manages the United Nation system's largest portfolio of operational environment and energy projects, increasingly in collaboration with UNEP's technical expertise and advocacy efforts and increasingly using GEF funds. It brings its expertise in poverty reduction and governance to bear in helping countries design and manage public policies that make the stewardship of environmental resources an integral part of human development.

"The total income of UNDP and its associated funds and programmes reached almost USD4.8 billion in 2006, with other (non-core or earmarked) contributions to UNDP itself reaching nearly USD3.8 billion."[9]

The roughly USD1 billion core funding has been steady for the past decade. Earmarked funding from various sources exceeded core funding for the first time in 1996 and has been rising sharply ever since. In 2006, the GEF portion of the earmarked UNDP funding was USD203 million.

UNDP allocates its funds into five major programmes: Poverty Reduction, HIV and AIDS, Democratic Governance, Crisis Prevention and Recovery, and Environment and Energy. CLASP's experience in dealing with UNDP and a cursory review of the Environment and Energy section of the 2007 UNDP Annual Report[10] leads us to believe that little, if any, non-GEF UNDP funding is devoted to energy efficiency PDA. The following two paragraphs describe the GEF portion of UNDP funding.

UNDP-GEF projects help to develop national capacities for environmental protection and sustainable development, often linked to poverty reduction and the generation of livelihoods. UNDP-GEF manages five corporate programmes on behalf of the GEF partnership: the Small Grants Programme, the GEF National Dialogue Initiative, the Climate Change National Communications Support Programme, the Support Programme for National Capacity Self-Assessments and the Country Support Programme for GEF Focal Points.

The UNDP-GEF climate change portfolio of projects reported in 2006 has a budget of nearly USD1 billion (USD 947.32 million), which includes nearly USD260 million from the GEF and USD684 million from co-financing sources (i.e., 72% of funding from co-financing)[11]. Roughly half of this funding is devoted to energy efficiency. Within energy efficiency funding, 55% is aimed at the industrial sector, 12% at district heating and water heating in the economies in transition, and 33% at the building sector. A total of USD157 million was spent in 2006 to remove barriers in the building sector in order to promote energy efficiency, of which USD32 million came from the GEF and USD125 million came from partner leveraging.

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[9] Executive Board of the United Nations Development Programme and of the United Nations, *Status of regular funding commitments to UNDP and its associated funds and programmes for 2007 and onwards.* DP/2007/18, 30 May 2007

[10] http://www.undp.org/publications/annualreport2007/environment_energy.shtml

[11] UNDP-GEF Project Implementation Review: Climate Change Focal Area Summary Report 2006.

Further description on UNDP-GEF projects aimed at removing barriers to energy efficiency and energy conservation is provided in Annexe 4.

3.4 United Nations Environment Program

The Division of Technology, Industry and Economics of the United Nations Environment Program (UNEP) has a budget of USD70 million, with USD3.4 million of this coming from GEF.[12] Within this Division, UNEP's Energy Branch conducts energy efficiency work aimed at either helping small and medium enterprises in developing countries or raising financial institutions' interest in lending for energy efficiency investments. UNEP has also done some general work on energy efficiency policy, such as joint workshops conducted with IEA. A UNEP contact estimates that UNEP has spent an average of USD100,000 per year for the past five years on TA related to energy efficiency policy efforts with a finance related angle, much of it aimed at China, India, and Brazil.

3.5 United Nations Department of Economic & Social Affairs

The Department of Economic and Social Affairs of the United Nations Secretariat (UNDESA) has, for a number of years, been supporting a range of activities aimed at promoting energy efficiency. These include technical cooperation activities and exchange of experiences and knowledge through international seminars, study tours and technical publications. Among the projects that are in place today, we found a list of energy planning and management projects totaling USD21.1 million. Of this total, USD8.8 million is categorized as being applied to "energy efficiency", USD6.5 million is characterized as being applied to "standards and labels", and USD5.8 million is characterized as being applied to implementation. The list of projects is provided in Annexe 5.

3.6 United Nations Industrial Development Organization

The United Nations Industrial Development Organization (UNIDO) generates and disseminates knowledge relating to industrial matters and provides assistance to developing countries and countries with economies in transition in building their infrastructure to enhance their development. Over recent years with the prospect of climate change, industrial energy consumption has evolved from a mainly financial and developmental matter into a more global environmental concern. In this context, the issue of promoting the efficient usage of energy, including energy-saving technologies, has gained growing international importance. Based on the well-documented understanding that the barriers to the accelerated introduction of energy efficient technologies and measures in industry include policy, financial and technical barriers, UNIDO has developed approaches to address these groups of barriers at both the national and industrial plant levels (top-down and bottom-up).

Specific activities undertaken in the context of this service include policy support, capacity building and advisory service. UNIDO's approach to industrial energy efficiency is being implemented in a number of projects. For example, within the industrial motor systems project in China, several plants have already implemented the recommendations arising from UNIDO's system assessments. The case studies, emerging from UNIDO's work, serve

[12] http://www.unep.fr/shared/docs/annual_reports/act_report2006_en.pdf

to demonstrate how efficient industrial energy systems also contribute to plant productivity and reliability. Also, in China, a GEF financed project aims at improving the energy efficiency of four energy-intensive sectors (cement, brick-making, metal casting and coking) by removing policy, technical and financial barriers.

UNIDO's FY2006-2007 budget includes USD136 million for the category "Energy and Environment". UNIDO applies this funding over nine Programme Components as described in Annexe 6. Although CLASP's research has not identified a budget breakdown for these components, Annexe 6 provides a rationale for estimating that roughly USD60 million of this funding is directed toward energy efficiency programs with only a small portion of that going to policy assistance.

3.7 Asian Development Bank

The Asian Development Bank (ADB), unlike the WBG, does keep records for its technical assistance (TA) products. As a result, CLASP was able to identify ADB's spending on TA by year. ADB reports the following totals for it energy TA approvals[13]:

1996: USD11.3 million
1997: USD11.4 million
1998: USD11.1 million
1999: USD10.1 million
2000: USD8.8 million
2001: USD9.0 million
2002: USD10.0 million
2003: USD13.1 million
2004: USD15.1 million
2006: USD14.4 million

CLASP was unable to identify whether ADB tracks the energy efficiency component of its energy TA; to date, no such allocation has been found.

Looking forward, ADB's Energy Efficiency Initiative (EEI) reports the need for large investments in energy efficiency:

> "Feedback from DMCs (developing member countries) has shown that financing is necessary to overcome high first cost barriers, and EE (energy efficiency)[14] growth has been constrained by a lack of adapted financing. ... The EEI Task Force made a top-down estimate of the EE market size for DMCs based on certain assumptions about technical and economic potential that are considered reasonably conservative. Assuming that 15% of current energy consumption can be saved with investments having an average payback period of 3 years, the total market size for supply and energy use-side efficiency improvements is about USD140 billion or USD14 billion

[13] Annual Report on Loan and Technical Assistance Portfolio Performance for the Year Ending 31 December 2005, ASIAN DEVELOPMENT BANK Operations Evaluation Department, RPE: OTH 2006-10, September 2006

[14] EE is defined by ADB as economic investments in energy generation, delivery and end-use equipment, facilities, buildings, and infrastructure that deliver higher useful energy outputs or services (e.g., lighting, heating, refrigeration, pumped water).

annually for 10 years. ... For now, the general conclusion is that the EE market is a large field of opportunity, consisting of a range of market segments, and a combination of TA, market development tools, policies, and incentives will be needed to turn EE's technical and economic potential into well-prepared investments."[15]

It remains unclear what portion of ADB's USD14 billion annual investment target is for PDA, but CLASP suspects that it is a ramping up of the TA described above and that only a portion of it is for energy efficiency.

3.8 Renewable Energy and Energy Efficiency Partnership

The Renewable Energy and Energy Efficiency Partnership (REEEP) is an active, global public-private partnership that structures policy and regulatory initiatives for clean energy, and facilitates financing for energy projects. REEEP was conceived at the Johannesburg World Summit on Sustainable Development in August 2002 and was developed via an intensive consultation process in 2003 covering a wide range of stakeholders at the national and regional levels. In June 2004, the REEEP was formally established as a legal entity in Austria with the status of an International NGO. The partnership is funded primarily by the United Kingdom and also by a number of other governments including: Australia, Austria, Canada, Germany, Ireland, Italy, Spain, the Netherlands, New Zealand, Norway, the United States, and the European Commission.

Energy efficiency is a REEEP priority with 44% of the total projects funded covering this topic. In 2007, total funding was 3.2 million euros over 35 projects. REEEP had previously disbursed 2.2 million euro in 2006 and 1.1 million euros in 2005. A list of REEEP projects aimed at promoting energy efficiency through policy is presented together with brief descriptions of each project in Annexe 7.

One PDA project that REEEP funds is the Asia-wide Network for Sustainable Energy Standards (ANSES). ANSES was initiated to develop an Asia-wide (and indeed international) consensus on the need for, and benefits of, harmonization of technical standards for energy efficiency and renewable energy equipment and projects. It also works to strengthen voluntary participation and adoption of such standards in an effort to reduce trade barriers in the regional energy efficiency and renewable energy market and to attract commercial financial investment in the long term. To avoid duplicating work done by others in the region, ANSES is working closely with the APEC Energy Standards Information System (APEC-ESIS); the Collaborative Labeling and Appliance Standards Program (CLASP); the Australian Greenhouse Office, and other regional agencies.

3.9 Asia-Pacific Partnership

The Asia-Pacific Partnership on Clean Development and Climate (APP) was created in January 2006 by six member countries: Australia, China, India, Japan, the Republic of Korea, and the United States. The Partners agree to collaborate to promote and create an enabling environment for the development, diffusion, deployment and transfer of existing and emerging cost-effective, cleaner technologies and practices, through concrete and

[15] REPORT OF THE ENERGY EFFICIENCY INITIATIVE: Draft for Circulation to the Board of Directors, Asian Development Bank, 29 March 2006

substantial cooperation so as to achieve practical results. The Partnership has established public-private Task Forces in eight key sectors: (1) cleaner fossil energy; (2) renewable energy and distributed generation; (3) power generation and transmission; (4) steel; (5) aluminium; (6) cement; (7) coal mining; and (8) buildings and appliances.

As a product of its first stage of collaboration, each Task Force has created an Action Plan, which has been endorsed by the Policy and Implementation Committee. The Building and Appliance Task Force's (BATF's) Action Plan, which essentially includes all of APP's energy efficiency PDA, contains an initial set of priority activities for implementation. BATF's Action Plan identifies USD21.6 million of financial resources needed for the implementation of projects. Some initial funding from some government and industry sources has already been committed by Partner countries. Annexe 8 provides the level of funding by project in the BATF Action plan over the next 5 years. Appliances standards and labels as well as building codes will be part of the program of works.

4. Bilateral Cooperation

4.1 United States Agency for International Development

The United States Agency for International Development (USAID) is an important actor in the effort to support the development of policies toward energy efficiency in developing countries. The Global Office of USAID has a long history of providing support for energy efficiency PDA. Funding in this area been declining dramatically over the past few years as funds are diverted to support areas of conflict around the world. Funding from this office has dropped from over USD6 million per year to less than a third of that over the past few years. Annexe 9 provides examples of PDA support for energy efficiency over the past seven years.

USAID's regional offices and country missions have also provided PDA for energy efficiency. The India USAID regional office is very active in enhancing energy efficiency improvements through policy implementation. The Energy Conservation and Commercialization (ECO) and South Asia Regional Initiative Energy (SARI/E) programs listed in Annexe 9 are two that are still being funded.

Through a total funding of USD25 million, USAID’s ECO project helps develop and implement policies that enhance the capabilities of the private and public sector to deploy energy efficient technologies and services. In its first phase, ECO helped India launch its Bureau of Energy Efficiency to enforce the country’s Energy Conservation Act of 2000 and provided technical assistance for the formation of the bureau’s action plan. Phase two moved the plan to the state level, helping agencies in target states to develop energy conservation strategies and initiate pilot projects to test new approaches. The second phase also contributed to the establishment of India’s first energy efficiency codes for buildings.

Now in its third phase, ECO focuses on helping governments and businesses introduce the technologies and methods to decrease inefficiency and conserve energy. Working with state and municipal governments, ECO:

- Builds the capacities of implementing agencies to develop and implement energy efficiency programs in key sectors – including building codes
- Expands and replicates successful pilot projects from the program’s second phase
- Demonstrates the financial benefit of energy conservation

- Develops curricula for post-graduate courses in energy efficiency – forming a cadre of professionals well versed in energy conservation
- Incorporates commercial labeling to ensure standardization and promotion of energy-efficient technologies and materials.

The SARI/E program promotes energy security in South Asia through three focus areas: (1) cross border energy trade, (2) energy market formation, and (3) regional clean energy development. Principal activities include conducting analytical studies on energy security, distribution reform, regulatory reform and energy efficiency. SARI/Energy countries include: Afghanistan, Pakistan, India, Nepal, Bhutan, Bangladesh, Sri Lanka and the Maldives.[16]

4.2 The European Union

Energy is included as a priority area in the new European Union (EU) development policy, allowing countries and regions to select it as a focal or non-focal sector for their ongoing program planning. Also the EU's Environment and Natural Resources Thematic Programme includes a component focused on promoting EU energy policies abroad, also covering energy efficiency and renewable energy.

The EU's Energy Initiative for Poverty Eradication and Sustainable Development (EUEI) was launched at the 2002 World Summit for Sustainable Development in Johannesburg as a joint commitment by the EU Member States and the European Commission to give increased priority to the important role of energy in poverty alleviation. This is a boost to an already active program of support for energy efficiency. The EUEI initiative strives to attract a major contribution from private sources. The 220 million euro Energy Facility is one of the EUEI instruments to attract resources for delivery of energy services in rural areas.

4.3 Other Donors

Accessible information on Development Assistance (AiDA) is an online directory[17] of aid activities. It offers a quick overview of who is doing what in international development, where they are doing it, and with what funds. AiDA is provided by Development Gateway Foundation (DGF), in cooperation with the OECD, UNDP and the World Bank.

Over 130,000 ongoing or planned activities worldwide are listed in AiDA, plus 400,000 archived projects and programs. Information is harvested from major bilateral donors, multilateral development banks, and UN agencies. Although the information may not be comprehensive or reflect all activities or most recent activities of these donors, AiDA should be considered a starting point for reviewing aid and development activities.

In order to extract the projects related to energy efficiency, all the projects concerning the energy sector, and identified by keywords such as “energy efficiency”, “energy conservation”, “demand side management”, “policy”, “reform” were selected. This resulted in 274 ongoing projects with a total funding of USD901.8 million. Among these, the World Bank provides, by far, the largest share of total funding, about 80%. If we exclude

[16] www.sari-energy.org

[17] http://aida.developmentgateway.org/

the World Bank, the Inter-American Bank, and the African Development Bank, the total funding is USD123 million, and Japan is seen as the largest funder with a share of 47%, followed by the US with a share of 25%, and then the EU with a share of 9%.

Table 1. Total Funding of Energy Efficiency Projects by Source

Organization	Country	USD	Share
JICA	Japan	57,625,759	46.8%
USAI	USA	31,359,000	25.4%
CEC	EU	11,069,876	9.0%
DGTZ	Germany	9,895,386	8.0%
DFID	UK	4,201,710	3.4%
BMZE	Germany	2,572,826	2.1%
NOMF	Norway	1,677,907	1.4%
JPOM	Japan	1,429,681	1.2%
DGCS	Italy	1,245,092	1.0%
USTD	USA	717,000	0.6%
DEFM	Latvia	627,730	0.5%
DANI	Denmark	346,489	0.3%
LUXE	Luxembourg	310,712	0.3%
DEFO	Germany	111,510	0.1%
ITCA	Italy	56,484	0.0%
Total		**123,247,162**	**100%**

Extracting more detailed information about energy efficiency PDA provided by each of the donor countries not previously addressed is beyond the scope of this research project.[18]

[18] Because of its close association with the authors, it is worth noting that the Ministry of Economy Trade and Industry (METI) via the Institute of Energy Economics, Japan (IEEJ) has provided CLASP more than $550,000 in funding for energy efficiency labeling and standards over the last two years. This project is, and has been active in China, India and Vietnam as well as in the area of global energy savings forecasting. It has had concrete results in transferring best practice as well as mobilizing actual energy savings. For example, in the last two years the project has made significant contribution to enhanced enforcement of MEPS and Labeling in China by supporting a small-scale check-testing program, the first of its kind and application in China. By mid-2008, the project will be able to claim significant energy savings associated with the technical assistance it has provided from CLASP to China in revising the labeling thresholds for refrigerators towards higher levels of efficiency. Further, the project developed the first comprehensive model of China's S&L impacts since the modern standards program began in 1996, and, while determining total savings by 2020 would reach 1145 TWh, or 9% of consumption, it also (for the first time) identified the relative contribution of each product and products for which further standards strengthening should be considered. Finally, the project includes the development of a more detailed and accurate regional and global model of S&L's potential to save energy and avoid GHG emissions than has ever been attempted (currently, the world's best estimate of the global potential of S&L programs is based on a percentage

5. Foundations

5.1 Energy Foundation

The Energy Foundation in the U.S. has one international program called the 'China Sustainable Energy Program' (CSEP) which, since its inception in 1999, has invested about USD60 million in China. This includes over 400 grants and with currently over 60 policy development and implementation projects underway in 19 provinces. CSEP focuses on China's most energy-consuming sectors: buildings, industry (iron and steel, cement, petrochemicals), electric utilities, and transportation. The program strives to build institutional capacity in China to analyze energy-saving and renewable energy opportunities, to support policy development furthering energy efficiency and renewable energy in accordance with China's policy priorities, and to assist with the implementation of those policies at both the national and provincial levels. The program is geared toward helping Chinese agencies and experts solve energy challenges for themselves, bringing in international expertise when requested. In 2006, CSEP funded about USD5 million worth of projects. Most of the projects involve technical assistance and energy efficiency improvements. About 26% is allocated to projects concerning the transport sector, 18% to the development of a low carbon path, 17% the building sector, 16% to the industry sector, 13% to the utility sector, and only 10% to renewable energy.

5.2 United Nations Foundation

Since its inception in 1998, the UN Foundation has committed USD10.7 million to energy efficiency-related projects. To date, approximately USD8.5 million has been disbursed, and the remaining USD2+ million is expected to be disbursed over the course of the next three years. UNF's commitment includes: (1) about USD6 million toward financing EE in Eastern Europe, Brazil, China and India; (2) about USD3 million toward enhanced standards and labels in developing countries; and (3) other efficiency improvement activities such as enhanced motor systems and coal-fired boilers in China. The energy efficiency initiatives included:

The *China Motor System Energy Conservation Program*, implemented by the UNIDO, seeks to promote improvements in motor designs and operating practices in China's Shanghai and Shandong provinces in order to reduce energy consumption and greenhouse gas emissions. Additionally, the project aims to lay the groundwork for a national efficient motors program in China that would be a replicable model for other developing countries.

The *Collaborating Label and Appliance Standards Program (CLASP)*, implemented by UNDESA and the UNDP, supports energy efficiency standards and labeling programs in China, India, Brazil, and South Africa. In China alone, CLASP's voluntary labels will save an estimated 20,000 GWh over the next 10 years, avoiding almost seven million tons of carbon dioxide emissions. Funding for this project totaled USD2.5 million.

The *Energy Efficiency Investment Development for Climate Change Mitigation* project, implemented by the UN Economic Commission for Europe (UNECE), assists governments

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savings of residential and commercial energy use by region) in order to stimulate increased interest in this important policy measure.

and financial institutions in developing infrastructure and capacity for cost-effective energy efficiency projects in Eastern European and CIS countries. It also establishes a sustainable, market-based model to finance energy efficiency and renewable energy investments with significant environmental, economic, and social benefits.

The *Financial Intermediation Mechanisms for Energy Efficiency Projects in Brazil, China and India* program, implemented by UNEP and the World Bank, seeks to achieve major increases in energy efficiency investments by domestic financial sectors in Brazil, China and India by fostering the development of energy efficiency investment project packaging capacity, both in existing financial institutions and through the development of new entities. The program includes innovative multiple international cross-country exchange activities to allow practitioners from each of the three countries to learn from each other and to jointly tackle the practical problems that each face in overcoming barriers to increased efficiency investment.

The *Sustainable Energy Finance Initiative (SEFI)*, a joint initiative of UNEP and the Basel Agency for Sustainable Energy, seeks to increase private sector investments in sustainable energy applications by working with financiers to develop the tools, support, and networks to drive financial innovation and scale-up lending to the sustainable energy market. It works to catalyze public-private alliances with mainstream financiers in order to lower the barriers to sustainable energy investment. On 1-2 June 2004, the SEFI event "Creating the Climate for Change," which UNF co-sponsored, brought together members of the finance community, government officials, and project developers from 37 countries in Bonn.

6. Conclusion

Funding for energy efficiency projects is increasing rapidly as public awareness of the threat of climate change grows. The GEF has become a major and growing donor of energy efficiency PDA. The World Summit for Sustainable Development held in Johannesburg in 2002 stimulated enhanced funding to provide better access to clean energy and to promote a more efficient use of energy. New and improved energy policy is a considerable target within the energy efficiency projects implemented across the world.

Based on all of the information assembled for this report, CLASP has made a very gross estimate of the annual rate of worldwide funding for energy efficiency PDA and for that portion devoted to S&L. The PDA portion of global energy efficiency funding comes predominantly from two sources – GEF and the foreign assistance agencies of developed nations. We estimate current GEF commitments to be USD50 to USD80 million. The contribution of foreign aid agencies is especially hard to estimate. It appears to be on the order of USD20 to USD50 million. From the numbers we have collected, we calculate that the annual rate of donor funding for energy efficiency PDA in the immediate future is most likely in the range of USD80 million to USD160 million as shown in Table 2. This includes current-year GEF commitments that are expected to materialize over the next few years. However, considering that the estimates in this report could easily be overestimated and are not likely to be underestimated, we believe that the actual PDA funding is closer to the low end of this range than to the high end.

Table 2. Estimation of Annual Rate of Donor Funding in USD millions for Energy Efficiency PDA by Main Donor

(Caution: The numbers in this Table are rounded to one significant figure; they represent judgments about what is PDA and what portion of big programs fits this category)

	Low	Max
Total	**$80**	**$160**
Multinational	**$60**	**$110**
GEF	$50	80
UNIDO	$2	$10
WB	$3	$7
UNDESA	$0.5	$1.5
ADB	$2	$6
REEEP	$1	$2
APP	$1	$4
Foundation	**$1**	**$1**
UNF	$0.5	$1.5
EF	$0	$1
Multilateral	**$20**	**$50**

Also, there is the possibility that APP may begin directing on the order of USD20 million to energy efficiency PDA in the immediate future. Additionally, the PDA funding listed above generates leveraged contributions that are required by GEF from public and private sources. This leveraged funding is typically on the same order as the funding itself, although much of it can be from sources included in the tally above.

Within worldwide energy efficiency PDA funding, the annual amount devoted to S&L is only a small portion of the total identified in Table 2. GEF and the foreign assistance agencies of developed nations again appear to be the predominant donors. GEF contributions appear to be in the range of USD5 to USDS25 million, depending on which projects under development end up being funded. The contribution of foreign assistance agencies in the aggregate is highly uncertain, but appears to be in the range of USD5 to USD10 million. The total global PDA funding devoted to S&L adds up to be on the order of USD10 million to USD35 million. Historically, the amount has been less than this because the GEF estimate includes commitments; current GEF S&L projects in most cases are funded only for project development and have not reached full project status. Again, using judgment about the likely overestimation and unlikely underestimation of these numbers, we expect that the actual PDA funding for S&L will be closer to the low end of this range than to the high end.

For both total PDA and the S&L portion, Asia is clearly the dominant region as recipient of that aid. With both China and India in the region and with Asia showing a more serious interest in energy efficiency than elsewhere, this is a natural outcome.

Our knowledge of what more could be usefully and effectively done to advance the adoption of energy efficiency policy in developing nations leads us to believe that whatever the total is, it's not anywhere near enough. The progress in energy efficiency improvements around the world is frustratingly slow. Energy efficiency technology continues to advance while governments continue to lag in their policies for accelerating the adoption of cost-effective new technologies into the marketplace. We expect that PDA funding two to four times the current amount could easily be applied effectively and would

still not bring us to an optimal level of efficiency.

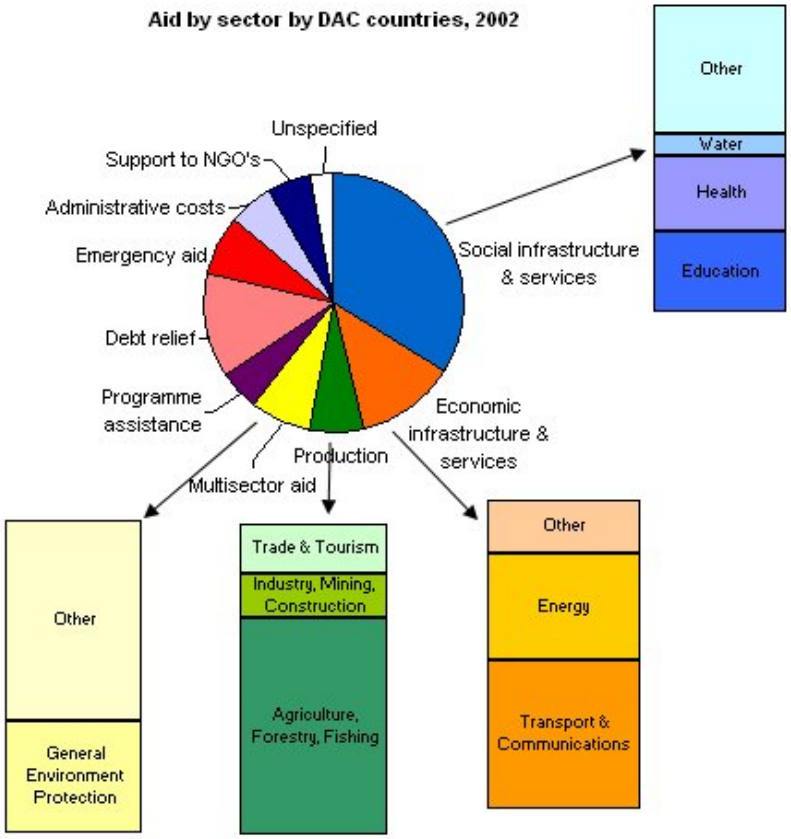
There are several ways that governments can act to effectively accelerate the uptake of new, efficient technology. The energy efficiency PDA touched on above goes toward several different government policies and programs, primarily (1) energy efficiency standards and labels for appliances, equipment, and lighting products, (2) government programs including government procurement policies, (3) building codes, (4) utility demand-side management (DSM), (5) industrial efficiency technical support, (6) financing mechanisms for energy efficiency, and (7) consumer education.

Let's look at just one of these policies, energy efficiency standards and labels. A couple of years ago, CLASP prepared an analysis for the GEF of what level of GEF funding would be appropriate for just their global initiative on S&L. This was a hypothetical calculation showing that USD150 to USD200 million over ten years is an appropriate budget for GEF support. This estimate included USD50 million for *regional* S&L PDA and at least USD100 to USD150 million for *bilateral* S&L PDA. The annual spending over this ten-year period ramps up to USD30 million in the sixth and seventh years and then ramps back down. The total USD150 million to USD200 million for GEF S&L assistance over a decade (USD15million to USD20 million per year average) would be in addition to the funding for S&L from other donors.

If one wanted a comprehensive market transformation globally, he or she would want similar programs for each of the other six government energy efficiency programs. We've not made estimates of the PDA needed for each of these other policies/programs but our experience suggests that some of them would require considerably more of an investment than S&L. So the bottom line is that an appropriate budget for a new comprehensive and coherent energy efficiency market transformation program over the next decade, in addition to the scattered efforts that are currently underway, would be between USD1.0 billion and USD1.5 billion. The funding would necessarily have to ramp up to allow international technical experts to shift their focus and local experts to learn the craft.

Annexe 1. Worldwide Technical Assistance

The Organization for Economic Cooperation and Development (OECD) database on aid flow called the Creditor Reporting System (CRS) provides a set of readily available basic data that enables analysis on where aid goes, what purposes it serves, and what policies it aims to implement, on a comparable basis for all Development Assistance Committee (DAC) members[19]. The CRS reports the following total assistance worldwide in 2002.



Source: OECD
http://www.oecd.org/oecd/images/portal/cit_731/9/41/11396818aidbysector2002.jpg

[19] AUSTRALIA: AusAid; AUSTRIA: Foreign Ministry; AUSTRIA: Austrian Development Agency (ADA) ; BELGIUM: Development Cooperation (DGDC) ; BELGUIM: Technical Cooperation (BTC) ; CANADA: Canadian International Development Agency (CIDA) ; DENMARK: Ministry of Foreign Affairs; EUROPEAN COMMISSION: DG Development; FINLAND: Department for International; Development Co-operation (global.finland) ; FRANCE: Department for International Co-operation; FRANCE: Le Groupe de l'Agence française de Développement (AfD) ; GERMANY: BMZ; GERMANY: GTZ; GERMANY: KfW; GREECE: Ministry of Foreign Affairs; IRELAND: Irish Aid; ITALY: Ministry of Foreign Affairs; JAPAN: Ministry of Foreign Affairs (MOFA) ; JAPAN: Japan International Cooperation Agency (JICA) ; JAPAN: Japan Bank for International Cooperation (JBIC) ; LUXEMBOURG: Lux-Development; NETHERLANDS: Ministry of Foreign Affairs; NEW ZEALAND: NZAid; NORWAY: Ministry of Foreign Affairs; NORWAY: Norwegian Agency for Development Cooperation (NORAD) ; PORTUGAL: Ministry of Foreign Affairs; PORTUGAL: Portuguese Institute for Development Support; SPAIN: Spanish Agency for International Cooperation (AECI) ; SWEDEN: Sida; SWITZERLAND: Swiss Agency for Development and Cooperation (SDC) ; SWITZERLAND: State Secretariat for Economic Affairs (SECO) ; UNITED KINGDOM: Department for International Development (DFID) ; UNITED STATES: United States Agency for International Development (USAID) ; UNITED STATES: Millennium Challenge Corporation (MCC)

Annexe 2. GEF Energy Efficiency Projects

The list of projects that the GEF funds and has funded is available on their website. The Table below shows those projects funded from 2005 to 2007, totaling USD213 million.

Country	Project Name	Region	Agency	Project Type	GEF Grant (USDM)	Project Stage
Argentina	Energy Efficiency	LAC	IBRD	Full Size Project	15.5	Council Approved
Bangladesh	Improving Kiln Efficiency for the Brick Industry	Asia	UNDP	Full Size Project	3.348	Council Approved
Belarus	Removing Barriers to Energy Efficiency Improvements in the State Sector in Belarus	ECA	UNDP	Full Size Project	1.595	CEO Endorsed
Brazil	Market Transformation for Energy Efficiency in Buildings	LAC	UNDP	Full Size Project	13.75	Council Approved
Bulgaria	Building the Local Capacity for Promoting Energy Efficiency in Private and Public Buildings	ECA	UNDP	Medium Size Project	1	CEO Approved
China	China Utility-Based Energy Efficiency Finance Program (CHUEE)	Asia	IBRD	Full Size Project	16.5	CEO Endorsed
China	Energy Efficiency Financing	Asia	IBRD	Full Size Project	13.5	Council Approved
Guinea	Electricity Sector Efficiency Improvement Project	AFR	IBRD	Full Size Project	4.5	CEO Endorsed
India	Market Transformation for Energy Efficient Refrigerators and Air-conditioners	Asia	UNDP	Full Size Project	5.66	Council Approved
India	Coal Fired Generation Rehabilitation Project	Asia	IBRD	Full Size Project	45.4	Council Approved
Kazakhstan	Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply	ECA	UNDP	Full Size Project	3.552	CEO Endorsed
Kenya	Market Transformation for Efficient Biomass Stoves for Institutions and Small and Medium-Scale Enterprises	AFR	UNDP	Medium Size	1	CEO Approved

Kenya	Development and Implementation of a Standards and Labeling Program	AFR	UNDP	Project Full Size Project	2.35	Council Approved
Lao PDR	Southern Provinces Rural Electrification II Program	Asia	IBRD	Full Size Project	5.33	Project Completion
Macedonia	Sustainable Energy Program	ECA	IBRD	Full Size Project	5.85	CEO Endorsed
Mongolia	Heating Energy Efficiency	Asia	IBRD	Full Size Project	7.2	Council Approved
Morocco	Energy Efficiency Codes in Residential Buildings and Energy Efficiency Improvement in Commercial and Hospital Buildings in Morocco	AFR	UNDP	Full Size Project	3.275	Council Approved
Philippines	Philippines Sustainable Energy Finance Program	Asia	IBRD	Full Size Project	5.3	Council Approved
Russian Federation	Financing Energy Efficiency in the Russian Federation (FEER)	ECA	IBRD	Full Size Project	7	CEO Endorsed
Slovak Republic	Removing Barriers to the Reconstruction of Public Lighting (PL) Systems	ECA	UNDP	Medium Size Project	0.995	CEO Approved
Sri Lanka	Portfolio Approach to Distributed Generation Opportunity (PADGO)	Asia	IBRD	Full Size Project	3.6	Council Approved
Ukraine	Removing Barriers to Greenhouse Gas Emissions Mitigation through Energy Efficiency in the District Heating System, Phase 2	ECA	UNDP	Full Size Project	3.494	CEO Endorsed
Vietnam	Promoting Energy Conservation in Small and Medium Scale Enterprises (PECSME)	Asia	UNDP	Full Size Project	5.799	CEO Endorsed
Vietnam	Rural Energy II	Asia	IBRD	Full Size Project	5.25	CEO Endorsed
Regional	Barrier Removal to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labeling Project (BRESL)	Asia	UNDP	Full Size Project	6.85	Council Approved
Regional	Financing Energy Efficiency and Renewable Energy Investments for Climate Change Mitigation	ECA	UNEP	Full Size Project	3	CEO Endorsed
Regional	Electrical Energy Efficiency in Industrial and Commercial	LAC	UNDP	Full Size	2.53	CEO Endorsed

	Service Sectors in Central America			Project		
Regional	Cogen for Africa	AFR	UNEP	Full Size Project	5.616	CEO Endorsed
Regional	Sustainable Energy Financing	Asia	IBRD	Full Size Project	9.48	CEO Endorsed

Annexe 3. World Bank Energy Efficiency Projects

The World Bank maintains a project database that provides access to basic information on all of the World Bank's lending projects from 1947 to the present. The following Table is a selection from the project database maintained by the World Bank. The selection criteria used were: “energy efficiency”, “energy conservation”, and “energy policy”. From the database we excluded projects that were only loan based and kept projects with grant funding. The amount of funding allocated to energy efficiency programs was estimated with a percentage for each type of project as shown in the grey column “Energy Efficiency (%)”. After applying the percentage to each project, total funding allocated to energy efficiency was seen to be about USD175 million. Total funding allocated to energy efficiency policy was estimated to be USD55 million.

COUNTRY	PROJECT NAME	Energy Eff. (%)	Policy EE (%)	S&L	APPROVAL DATE	CLOSING DATE	GRANT USD million
China	CN-GEF Energy Conservation	100%	100%		26-Mar-98	30-Jun-07	22
China	Efficient Industrial Boilers Project	100%	100%		23-Dec-96	30-Jun-04	32.8
China	Second Beijing Environment Project - GEF Component	50%			20-Jun-00	31-Mar-09	25
China	China Energy Efficiency Financing	100%			N/A	N/A	13.5
China	Energy Conservation Project, Phase II	100%			24-Oct-02	30-Jun-10	26
Croatia	CROATIA - ENERGY EFFICIENCY PROJECT	100%			7-Oct-03	30-Jun-10	7
Czech Rep.	The Czech PCF Umbrella Project - Energy Efficiency	100%			15-Oct-03	N/A	7
Lithuania	Vilnius Heat Demand Management GEF Project	100%			10-Jun-03	30-Jun-08	6.5
FYROM	Sustainable Energy GEF Project	50%			19-Dec-06	31-Mar-11	5.5
Mexico	High Efficiency Lighting Project	100%			18-Mar-94	31-Dec-97	10
Moldova	Energy Conservation & Emissions Reduction Project (Community Development Carbon Fund)	100%			24-Feb-06	N/A	0.48
Mongolia	Stove Improvement Project	100%			6-Feb-01	31-Mar-07	0.75
Morocco	Repowering Project	33%			7-Sep-94	1-Aug-98	6
Poland	Energy Efficiency GEF Project	100%			14-Oct-04	30-Jun-11	11
Tunisia	ENERGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR	100%			4-Nov-04	31-Dec-09	8.5
Uruguay	Energy Efficiency Project	100%			13-May-04	30-Jun-10	6.88
Vietnam	Demand-Side Management & Energy Efficiency Project	100%			24-Jun-03	30-Jun-09	5.5
Global	**Total**	**USD175 million**	**USD55 million**				**USD194 million**

Annexe 4. UNDP GEF Projects

UNDP through its publication "UNDP-GEF Project Implementation Review: Climate Change Focal Area Summary Report 2006" provides a complete report on its activities concerning energy efficiency as well as the funding levels for these activities. Tables 1, 2 and 3 provide lists of three project categories, as well as the amount of funding received from the GEF and the amount of funding leveraged. Projects concerning appliance and building energy efficiency improvement (Table 1) have a total budget of USD124.8 million of which USD32.1 was financed by the GEF. We judge that all of these projects are policy development assistance.

Table 1. Cluster 1 - projects – Efficient appliances and buildings

Region	Country	Project Title	Total Project Cost (10^6USD)	Total GEF Funding (10^6USD)
RBAP	China	Barrier Removal for the Widespread Commercialization of Energy-Efficient CFC Free Refrigerators in China	40.9	9.61
RBAP	China	Barrier Removal for Efficient Lighting Products (Greenlights)	29.52	8.13
RBEC	Czech Rep	Low Cost/Low Energy buildings in the Czech Republic	2.3	0.45
RBAP	Mongolia	Commercialization of super-insulating building technology in Mongolia	1.5	0.73
RBAP	Philippines	Philippines Efficient Lighting Market Transformation Project (PELMATP)	15	3.13
RBEC	Poland	Polish Energy Efficient Motors Programme	22.31	4.50
RBAS	Regional	Capacity Building for the Adoption and Application of Energy Codes for Buildings	0.58	0.49
RBAS	Tunisia	Experimental Validation of Building Codes and Removal of Barriers to their Adoption	10.68	4.36
RBAS	Tunisia	Barrier Removal to Encourage and Secure Market Transformation and Labeling of Refrigerators	2.02	0.71
		Total	124.81	32.11

Table 2. Cluster 2 projects –District heating and hot water

Region	Country	Project Title	Total Project Cost (10^6USD)	Total GEF Funding (10^6USD)
RBEC	Armenia	Improving the Energy Efficiency of Municipal Heat and Hot Water Supply in Armenia	3.45	3.16
RBEC	Hungary	Public Sector Energy Efficiency Programme	20.65	4.27
RBEC	Romania	Capacity Building for GHG Emission Reduction through Energy Efficiency improvement in Romania	11.09	2.31
RBEC	Russia	Cost Effective Energy Efficiency Measures in the Russian Educational Sector	2.71	1.00
RBEC	Turkmenistan	Improving the Energy Efficiency of the Heat and Hot Water Supply	1.71	0.75
RBEC	Ukraine	Climate Change Mitigation in Ukraine Through Energy Efficiency in Municipal District Heating	2.34	2.03
		Total	USD41.95	USD13.52

Table 3. Cluster 3 projects – Industrial energy efficiency

Region	Country	Project Title	Total Project Cost (10^6USD)	Total GEF Funding (10^6USD)
RBAP	China	Energy Conservation and GHG Emissions Reduction in Township and Village Enterprise Industries in China	18.54	7.99
RBAP	China	End Use Energy Efficiency Project (EUEEP)	80.00	17.00
RBEC	Croatia	Removing Barriers to Implementation of Energy Efficiency Measures in Croatia	13.05	4.39
RBAS	Egypt	Energy Efficiency Improvements and Greenhouse Gas Reduction	6.49	4.11
RBLAC	Honduras	Energy Efficiency Measures in the Honduran Commercial and Industrial Sectors	2.78	1.00
RBAP	India	Removal of Barriers to Energy Efficiency Improvement in Steel Re-rolling industry	31.86	6.75
RBA	Kenya	Removal of Barriers to Energy Conservation and Energy Efficiency in Small and Medium Scale Enterprises (SMEs)	8.32	3.19
RBAS	Lebanon	Cross Sectoral Energy Efficiency and Removal of Barriers to ESCO Operation	5.40	3.40
RBAP	Malaysia	Industrial Energy Efficiency and Improvement Project	20.79	7.30
RBAS	Syria	Supply-Side Efficiency and Energy Conservation and Planning	42.88	4.07
		Total	USD112.03	USD25.71

Annexe 5. UNDESA Energy Efficiency Projects

UNDESA provides details of its project portfolio on its website including descriptions of projects and funding levels. The following Table shows those projects that include an energy efficiency component. The column titled "energy efficiency" shows the total amount of funding for each project; the column "S&L" shows the amount of funding allocated to standards and labeling programs. The third column ("implementation") shows the amount of funding allocated to the implementation of standards and labeling programs. In the case of the Demand-side Management project, we assumed that 25% of the funding was allocated to standard and labeling programs.

Energy planning and management (USD million)	Energy Efficiency	S&L (estimation; USD million)	Implementation (estimation; USD million)
Asia and the Pacific			
SOPAC Demand Side Management Project 1 Feb 2003- present	0.2	0.05	
China			
Barrier removal for CFC-free and energy efficient refrigerators in China / 1 Dec 1999- present	4.2	4.2	4.2
City planning, management and development in the 21st century	0.03		
Egypt			
Energy efficiency improvements 1 Oct 1998- present	1.7	0.4	
Energy efficiency improvements and greenhouse gas reduction / 1 Oct 1998- present	0.2	0.0	
Global			
Energy efficiency standards and labelling programme 30 Apr 2000- present	1.6	1.6	1.6
Saudi Arabia			
National energy efficiency programme 28 Aug 2002- present	0.9	0.2	
Total for all Projects	**8.8**	**6.5**	**5.8**

Source: http://esa.un.org/techcoop/portfolio_detail.asp?ID=dsd

Annexe 6. UNIDO Energy Efficiency Projects

No project detail was available on the UNIDO website. However, we found some information concerning its budget allocation for the year 2006-07. The Table below shows that the category 'Energy and Environment' received a budget of USD136 million. This category is further divided into 9 sub-categories. As no information was available on the exact budget allocated for each category we assumed an even distribution between the total budgets to each category. We assumed that two subcategories within this category (Program C.2: Industrial Energy Efficiency and Program C.8: Environment in Agro-Industries) were entirely devoted to improve energy efficiency and that for three categories (Program C.3: Cleaner and Sustainable Production, Program C.7: Climate Change, and Program C.9: Regional Priorities, Funds Mobilization and Partnerships) half of the funding allocated went to the promotion of energy efficiency. Hence, it is estimated that on the order of USD60 million might be allocated to energy efficiency programs by UNIDO. Of this amount, most would be devoted to improving the efficiency of specific industrial facilities and only a small portion would be devoted to policy initiatives, mostly relating to motors and motor systems.

	Total budget (USD million)	**Budget breakdown** (estimation)	**Budget allocation to EE** (estimation; USD million)	**Total EE Funding** (estimation; USD million)
C. Energy and Environment	**135.7**	**100%**		
Programme Component C.1: Rural and Renewable Energy		11%		
Programme Component C.2: Industrial Energy Efficiency		11%	100%	15.0
Programme Component C.3: Cleaner and Sustainable Production		11%	50%	7.5
Programme Component C.4: Water Management		11%		
Programme Component C.5: Montreal Protocol		11%		
Programme Component C.6: Stockholm Convention		11%		
Programme Component C.7: Climate Change		11%	50%	7.5
Programme Component C.8: Energy and Environment in Agro-Industries		11%	100%	15.0
Programme Component C.9: Regional Priorities, Funds Mobilization and Partnerships		11%	50%	7.5
Total				**60.3**

Source: Programme and budgets 2006/07, Revised Proposal of the Director General, UNIDO, 13 October 2005.

Annexe 7. REEEP - 2006-07 Policy Programs

The Table below provides the entire list of projects funded by REEEP during the 2006-2007 period. The column "EE" estimates the percent of total project funding allocated to energy efficiency programs. No specific budget detail was available. The projects shaded in grey represent projects that include standards and labeling programs.

	EE	
Africa		
Innovative Policy Frameworks for RE in Morocco	0%	Transfer European best practices in the use of RE and EE financial instruments and their integration into the energy planning process.
Policy Development for Renewable Cooling & Heating in Tunisia and Morocco	0%	Define a policy for the promotion of RES in Tunisia and Morocco, with the aim of reducing total primary energy consumption. assistance with writing primary and secondary legislation, codes of practice and the review of such instrument. Harmonise the development strategy of the two African countries within the European Energy Plan, highlighting synergies and macroeconomic advantages.
Integrated Rural Energy Utility (IEU) Roadmap in South Africa	0%	Enable the development of large-scale decentralized entities that deliver a range of renewable and other energy services to primarily rural regions (households, social services and productive use applications).
Asia Pacific		
Standards & Labels for Air Conditioners and Refrigerators in India	100%	Develop standards and labels (S&L) for refrigerators and air conditioners
National Action Plan for Rural Biomass Energy in China	25%	Develop a National Action Plan for rural biomass renewable energy in China with supporting documentation. The National Action Plan will provide detailed measures to enable China to achieve its biomass development target
Panzhihua's Pilot Action towards a Sustainable Energy City	50%	Develop an innovative methodology and toolkit for energy management within the Panzhihua Sustainable Energy City (SEC) Plan. It will also improve Panzhihua's capacity for developing renewable energy and energy efficiency policies and regulations. Two pilot projects will be developed within framework of Panzhihua SEC Plan and a package of market-based investment methods will be planned to implement them, including carbon finance.
Efficiency Power Plant Implementation in Jiangsu, China	100%	Assist the Jiangsu Economic and Trade Commission (ETC) with its

		Demand-Side Management (DSM). The programme is the Province's main strategy for achieving its contribution to China's national energy intensity reduction target of 20% by 2010. develop a DSM Monitoring and Verification protocol together with a supporting DSM manual for the region.
International		
Development of International EMS – UNIDO	100%	Share and disseminate information on Energy Management Standards as effective policy and regulatory mechanisms to promote and support improved energy efficiency in industry. UNIDO will draft a consolidated approach to energy management based on experiences from developing and transition economy countries. The resulting report will be submitted to the International Standards Organisation (ISO) Central Secretariat and would form the base for a future ISO Technical Committee to develop an international ISO energy management standard.
Improving Electricity Governance in Brazil and South Africa	0%	In both Brazil and South Africa, research will be completed by civil society organisations with an established track record in the energy sector, working in close collaboration with an advisory panel of sector officials. The advisory panel will provide advice on the research approach, monitor work and provide input, review assessment results and support a strategy and action plan for engaging actors beyond the coalition.
REEEP Report on Global Energy Efficiency	100%	The commissioned project will define energy efficiency measures, market potential for energy efficiency, annual energy savings, investments in energy efficiency and energy efficiency policies and programmes. The study will focus on historical and potential thermal and electrical energy efficiency improvements for the following sectors: Industry, Domestic buildings, Non-domestic buildings, Transport (passenger and freight) and Power generation (including transmission and distribution).
Latin America & Caribbean		
Development of Renewable Energy Laws in Ecuador	0%	The new government administration in Ecuador has created the Subsecretary of Renewable Energy and Energy Efficiency under the Ministry of Energy and Mines. The Subsecretary has several objectives, including the establishment and promotion of national regulation, norms and laws for renewable energy and energy efficiency. Under this remit,

		the Subsecretary must prepare and coordinate the plans, programmes and national strategies for energy efficiency and renewable energy.
Study to Remove the Barriers to Renewable Energy in Argentina	0%	The Argentine National Congress passed the Law 26190/2006 entitled "Regime for National Promotion of the Use of Renewable Sources of Energy for Electricity Production", granting tax and fiscal benefits to those generators that use renewable resources to supply electricity to public services. The law establishes an incentive for renewables via a payment of 15 cent (one and a half cent of peso the national currency) per kWh generated by renewable source for a term of 15 years from installation.
Policy framework for grid-connected solar PV roofs programme in Brazil	0%	Develop legislation and regulation drafts, in final format, for direct implementation by the Brazilian Mines and Energy Ministry and also by the Electricity Regulatory Agency. The legislation will propose a long-term (20 year) solar roof (in the GWp scale) incentive programme in Brazil.
Development of a "Learning Centre" for Distributed Generation in Brazil	0%	Assist Brazilian utilities to build a corporate culture that supports distributed generation (DG) through the creation of a "Learning Center for Renewable Energy and Decentralised Generation: Business, Management, Financing, Technology and Policy."

Annexe 8. APP - Building Task Force Action Plan

This Table lists the task and the provisional level of funding that the APP Building Task Force plans to conduct over the period 2007-2010.

ID	Projects	Million USD, Funding for 2007	Million USD, Total Funding	Time Frame
BATF-06-01-PR	Harmonization of Test Procedures	0.8	4.8	2007-2011
BATF-06-02-PR	Standby Power	1.1	4.4	2007-2015
BATF-06-03-PR	Market Transformation	1.2	TBD	2007-2008
BATF-06-04-PR	Building Certification		0.9	2007-2010
BATF-06-05-PR	Improvements to Existing Buildings		TBD	2007-2009
BATF-06-06-PR	Building Codes	0.9	5.1	2007-2010
BATF-06-07-PR	High-Performance Buildings and Development		3.4	2007-2010
BATF-06-08-sub1	Financing and Contracting		3.0	2007-2010

TBD: to be determined

Source: Building Task Force, Action Plan.
http://www.asiapacificpartnership.org/APPProjects/BATF/Buildings%20and%20Appliances%20Task%20Force%20Action%20Plan%20030507_.pdf

Annexe 9. USAID Energy Efficiency Projects

The following Table lists recent energy efficiency projects implemented or funded by USAID. Funding level is supplied in those cases where it is known.

Countries	Projects	Time Frame	USD Million	Project Description
Brazil	Watergy – Water and Energy Management	Sep 2000 – Sept 2005		Motor retrofits and upgrades optimization of existing pumping systems, and increasing pumping and storage capacity to allow for off-peak pumping.
Dominican Rep.	Energy Efficiency Strategy for the Dominican Republic	Nov 2003 – Sept 2004		This project aims to develop an Energy Efficiency Strategy that assesses conditions and opportunities for energy efficiency in the Dominican Republic, and recommends priority energy efficiency activities over the short, medium, and long terms.
Egypt	Procuring Energy Efficiency Services	Jan 2005 - Sept 2006		Development of a replicable process to procure energy efficiency services and equipment using performance-based schemes within public procurement guidelines
Global	CLASP	1999 – 2005		Energy-efficient standards and labeling (S&L) policies for appliances and equipment.
	Energy Efficient Public Procurement	2000– 2006		Collaboration with municipalities, federal agencies, and other local organizations to provide guidance and technical support for energy-efficient procurement and overall public sector energy management. PEPS develops outreach tools (i.e. website, guidebook, energy savings calculator) and works with developing country partners to implement government sector energy-efficiency programs.
	Watergy – Water and Energy Efficiency			Improve overall system efficiency, reducing costs and negative environmental impacts, while expanding water and wastewater services to country's underserved populations.
India	Green Business Center	Apr 2003 – Sept 2003	0.15	Through the partnership model, USAID was able to leverage its initial funds (USD150,000) to gain the contribution of and from the State of Andhra Pradesh ...
	Watergy – Water and Energy Management	Sept 2000 – Sept 2005		Improve overall system efficiency, reducing costs and negative environmental impacts, while expanding water and wastewater services to country's underserved populations.
Mexico	Energy Efficiency	Sept		Since 1995, the Alliance to Save Energy's

	Industry Partnership	2000 – Sept 2004		(the Alliance's) Energy Efficiency Industry Partnership (EEIP) program in Mexico has provided more than 2,000 energy managers and other representatives from over 700 industrial, commercial, hotel, and hospital facilities information and access to energy-efficiency technologies and services through educational seminars. Third party evaluators estimate that the program is saving participants approximately 270 million kilowatt-hours of electricity, 182 billion BTUs of natural gas, and USD25.8 million on deferred annual energy costs – which amounts to enough money to power 215,000 Mexican homes annually.
	Energy Efficient Public Procurement Promoting an	2004– 2007 Sept		Promoting an Energy-Efficient Public Sector (PEPS)
	Energy-Efficient Public Sector	2000 – TBD		Guidebook on Promoting Energy Efficiency in the Public Sector.
	Watergy – Water and Energy Management	Sept 2000 – Sept 2005		Improve overall system efficiency, reducing costs and negative environmental impacts, while expanding water and wastewater services to country's underserved populations.
Peru	Energy Services Companies Exchange Program	Sept 1999 – Mar 2004		The purpose of the Program is to develop, test and show different strategies and mechanism for promoting the use of sustainable energy applicable to the restructured markets of Latin American countries.
South Africa	Watergy – Water and Energy Management	Sept 2000 – Sept 2005		Improve overall system efficiency, reducing costs and negative environmental impacts, while expanding water and wastewater services to country's underserved populations.
Sri Lanka	Watergy – Water and Energy Management	Sept 2000 – Sept 2005		Improve overall system efficiency, reducing costs and negative environmental impacts, while expanding water and wastewater services to country's underserved populations.
USAID India Office				
India	DRUM: Distribution Reform, Upgrades and Management	Jun 2004 - Jun 2008	20	DRUM focuses on improving distribution practices to mitigate energy losses, increase customer satisfaction and make energy providers commercially viable.
India	ECO: Energy Conservation and Commercialization	Jan 2000 - Sept 2008	25	USAID's Energy Conservation and Commercialization (ECO) project helps develop and implement policies that enhance the capabilities of the private and public sector to deploy energy efficient

				technologies and services. A three-phase program, ECO first helped India launch its Bureau of Energy Efficiency to enforce the country's Energy Conservation Act of 2000 and provided technical assistance for the formation of the bureau's action plan. Phase two moved the plan to the state level, helping agencies in target states to develop energy conservation strategies and initiate pilot projects to test new approaches. The second phase also contributed to the establishment of India's first energy efficiency codes for buildings.
South Asia	SARI: South Asia Regional Initiative for Energy	Jan 2000 - Sept 2008		USAID's South Asia Regional Initiative for Energy (SARI/Energy) facilitates the cost-effective use of energy through cross-border trade and investment between Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka, Afghanistan, Pakistan and India. Promoting regional energy security through increased energy diversification, reduced prices and improved accessibility for consumers.
India	GEP: Greenhouse Gas Pollution Prevention	Apr 1995 - Sept 2008	39	USAID's Greenhouse Gas Pollution Prevention Project (GEP) helps India reduce its greenhouse gas emissions by introducing new technologies and best practices to promote the use of clean energy. GEP introduces clean energy technologies to India's coal-fired power plants and promotes the use of alternative energy sources and decentralized renewable energy production and distribution systems.
India	TEST/CTI: Trade in Environmental Services and Technologies/Clean Technology Initiative	Sept 1992 - Sept 2007	25	USAID's Trade in Environmental Services and Technologies/Clean Technologies Initiative (TEST/CTI) has long promoted the voluntary adoption of environmental management systems and clean, climate-friendly technologies to help mitigate India's pollution. Past TEST/CTI efforts financed demonstration projects for Indian industry on the advantages of using internationally recognized environment management systems.
India	WENEXA: Water-Energy Nexus	July 2004 - Sept 2008	10	USAID's Water-Energy Nexus Activity (WENEXA) helps India address conservation issues that arise from water and energy's interdependence.